

CLAIMS

I claim:

1. An image forming device comprising:
a storage device for storing data; and
a storage access manager configured to coordinate access to the storage device from a plurality of client devices that communicate with the storage device using at least one uncoordinating communication protocol.
2. The image forming device of claim 1 wherein the storage access manager is configured to coordinate simultaneous access to the storage device from a sector-level communication protocol and a file-level communication protocol.
3. The image forming device of claim 2 wherein the sector-level communication protocol includes a universal serial bus protocol and the file-level communication protocol includes a common internet file system protocol.
4. The image forming device of claim 1 wherein the storage access manager further includes a contention matrix configured to determine contention states for accessing the storage device.
5. The image forming device of claim 1 further including a universal serial bus communication port for communicating to the storage device and, a network communication port for communicating to the storage device.
6. The image forming device of claim 1 further including a plurality of universal serial bus communication ports configured to provide access to the storage device.
7. The image forming device of claim 1 wherein the storage device includes logic to notify a client device whether an access request for the storage device is permissible.

8. The image forming device of claim 1 wherein storage access manager is embodied as logic.

9. The image forming device of claim 1 wherein storage device is one or more memory cards.

10. The image forming device of claim 1 wherein the storage access manager includes storage access manager means to coordinate the access to the storage device.

11. An article of manufacture embodied in a computer-readable medium for use in an image forming device having a storage device accessible by at least a first communication protocol and a second communication protocol, the article of manufacture comprising:

first processor executable instructions for causing a processor to maintain a current access state for the storage device;

second processor executable instructions for causing a processor to determine a contention status between the current access state and a received access request for accessing the storage device based on a contention logic, the contention logic defining rights for simultaneous access to the storage device from the at least first communication protocol and the second communication protocol; and

third processor executable instructions for causing a processor to determine whether the received access request is permissible based on the contention status.

12. The article of manufacture as set forth in claim 11 wherein the contention logic is configured to coordinate simultaneous access to the storage device by one or more clients using the first communication protocol and one or more clients using the second communication protocol.

13. The article of manufacture as set forth in claim 11 wherein the contention logic is configured as a contention matrix that defines a plurality of access types to the storage device and whether simultaneous access is permissible between each other.

14. The article of manufacture as set forth in claim 11 wherein the contention logic is configured based on the first communication protocol being a sector-level protocol and the second communication protocol being a file-level protocol.

15. The article of manufacture as set forth in claim 11 wherein at least a first communication protocol and the second communication protocol include at least one uncoordinating communication protocol.

16. The article of manufacture as set forth in claim 11 further including fourth processor executable instructions for causing a processor to notify a first client when access to the storage device occurs by a second client.

17. The article of manufacture as set forth in claim 11 wherein the at least first and the second communication protocols include the same protocol.

18. The article of manufacture as set forth in claim 11 further including fifth processor executable instructions for causing a processor to assign an identifier to each client requesting access to the storage device.

19. The article of manufacture as set forth in claim 11 wherein the second processor executable instructions include storage access manager means for controlling access to the storage device.

20. A method of providing access to a storage device within an image forming device, the method comprising the steps of:

providing access to the storage device in accordance with multiple communication protocols;

coordinating multiple access requests to the storage device based on contention rules that define permissibility of simultaneous access requests from the multiple communication protocols; and

determining whether a received access request is permissible based on a current access state of the storage device and a contention with the received access request based on the contention rules.

21. The method as set forth in claim 20 further including defining the contention rules based on types of access requests and a type of communication protocol associated with each access request.
22. The method as set forth in claim 20 wherein the providing access step including providing access based on a sector-level communication protocol and a file-level-communication protocol.
23. The method as set forth in claim 20 further including notifying a client requesting access to the storage device whether access is permissible.
24. The method as set forth in claim 20 further including assigning an identifier to each access request received.
25. The method as set forth in claim 20 further including notifying a first client when a second client accesses the storage device.
26. The method as set forth in claim 20 wherein the multiple communication protocols include at least one uncoordinating communication protocol.
27. The method as set forth in claim 20 wherein the multiple communication protocols include the same communication protocol.